

ABSTRACT

A resilient tire that supports a load without internal air pressure includes a ground contacting tread portion and sidewall portions extending radially inward from said tread portion and anchored in bead portions adapted to remain secure to a wheel during rolling of the tire. A reinforced annular band is disposed radially inward of the tread portion. The band comprises an elastomeric shear layer, at least a first membrane adhered to the radially inward extent of the elastomeric shear layer and at least a second membrane adhered to the radially outward extent of the elastomeric shear layer. Each of said membranes has a longitudinal tensile modulus sufficiently greater than the shear modulus of said shear layer so that when under load the ground contacting portion of the tire deforms to a flat contact region through shear strain in the shear layer while maintaining constant the length of the membranes.

Fig. 1